Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously presented) A Schottky barrier photodetector means comprising a waveguide structure formed by a strip (100) of metallic material surrounded by material (112) having a relatively low free charge carrier density, optical radiation ($h\upsilon$) for detection being coupled to one end of the strip, the strip having finite width and thickness with dimensions such that said optical radiation couples to the strip and propagates along the length of the strip as a plasmon-polariton wave, the surrounding material on at least one side of the strip comprising doped semiconductor material, a Schottky barrier being formed between said one side of the strip and the semiconductor material, the photodetector means further comprising means (102, 103, 104, 16,108, 110) for applying bias to the Schottky barrier and extracting a current (I_p) in dependence upon said optical radiation.

2. (Previously presented) A photodetector means according to claim 1, wherein the applying and extracting means comprises at least one ohmic contact (108, 110) applied to the semiconductor material and contact means (102, 103, 104, 106) connected to the strip (100).

3. (Previously presented) A photodetector means according to claim 2, wherein said contact means comprises at least one contact (106) connected to the strip (100) by at least one connector (104) extending through the semiconductor material.

4. (Previously presented) A photodetector means according to claim 3, wherein said at least one connector (104) comprises highly-doped semiconductor material doped oppositely as compared with the surrounding semiconductor material (112).

5. (Previously presented) A photodetector means according to claim 3, wherein the connector (104) comprises at least one core (125) of conductive material extending through a hole (126) in the surrounding material (112), the hole (126) being lined by an insulating sleeve (127) surrounding the core (125).

6. (Previously presented) A photodetector means according to claim 3, wherein the contact means further comprises a plurality of mutually-spaced contact fingers (102) connecting the

connector (104) to the strip (100).

7. (Previously presented) A photodetector according to claim 6, wherein the contact means further comprises an elongate contact portion (103) extending substantially parallel to the waveguide strip (100) and interconnecting the contact fingers (102) and the at least one connector (104).

8. (Previously presented) A photodetector means according to claim 1, further comprising a reflector (130) disposed at an end of the strip (100) opposite to said one end of the strip, the reflector (130) being arranged to reflect said plasmon-polariton wave back along the strip.

9. (Previously presented) A photodetector means according to claim 8, wherein the reflector (130) comprises a grating.

10. (Previously presented) A photodetector means according to claim 9, wherein the grating comprises a second plasmon-polariton waveguide structure similar to the first-mentioned plasmon-polariton waveguide structure.

11. (Previously presented) A photodetector means according to claim 8, wherein the reflector comprises a highly reflective coating on a back facet (128) of the semiconductor material, the coating extending around an end of said strip opposite to said one end.

12. (Previously presented) A photodetector means according to claim 1, wherein the material on the opposite side of the strip (100) comprises a semiconductor material, thereby providing a second Schottky barrier at the interface therebetween.

13. (Previously presented) A photodetector means according to claim 1, wherein the material on all four sides of the strip (100) comprises semiconductor material, such that there are four Schottky barrier interfaces between the four sides of the strip and the semiconductor material.

14. (Currently amended) A photodetector means according to claim 1, wherein the strip has width and thickness of the same order of magnitude.

15. (Previously presented) A photodetector means according to claim 1, wherein the semiconductor material comprises silicon and the strip material comprises a metal silicide.

16. (Previously presented) A photodetector means according to claim 1, wherein the metal silicide is selected from the group consisting of platinum-based silicides, palladium-based silicides, erbium-based silicides, iridium-based silicides, cobalt-based silicides, titanium-based silicides and nickel-based silicides.

17. (Previously presented) A photodetector means according to claim 1, wherein the semiconductor material comprises germanium and the strip material comprises a metal germanide.

18. (Previously presented) A photodetector means according to claim 17, wherein the germanide is selected from the group consisting of platinum-based germanides, palladium-based germanides, cobalt-based germanides and titanium-based germanides.

19. (Previously presented) A photodetector means according to claim 1, wherein the semiconductor material comprises silicon-germanium and the strip material comprises a combination of a metal silicide and a metal germanide.

20. (Previously presented) A photodetector means according to claim 1, wherein the strip comprises a single material or a combination of materials selected from the group consisting of metals, semi-metals and materials which behave like metals.

21. (Previously presented) A photodetector means according to claim 20, wherein the strip comprises a metal selected from the group consisting of gold, copper, aluminum, silver, platinum, palladium, nickel, titanium, tungsten, molybdenum and chromium.

22. (Previously presented) A photodetector according to claim 20, wherein the strip comprises Indium Tin Oxide (ITO).

23. (Previously presented) A photodetector according to claim 1, wherein the semiconductor material comprises an elemental semiconductor material formed from elements of Column IV of the Mendeleev periodic table, or a compound semiconductor formed from elements of Column IV of the Mendeleev periodic table, or a compound semiconductor material formed from elements of Columns III and V of the Mendeleev periodic table, or a compound semiconductor material formed from elements of Columns II and VI of the Mendeleev periodic table.

24. (Previously presented) A photodetector according to claim 23, wherein the semiconductor

material is selected from the group consisting of silicon, germanium, silicon-germanium, silicon carbide, silicon germanium carbide, silicon germanium carbide tin, gallium arsenide, indium phosphide, gallium aluminum phosphide, gallium aluminum arsenide, gallium indium phosphide, gallium indium arsenide, gallium indium aluminum phosphide, gallium indium aluminum arsenide, gallium indium arsenide phosphide, and gallium aluminum arsenide phosphide.

25. (Previously presented) A photodetector means according to claim 20, wherein the surrounding material is inhomogeneous.

26. (Previously presented) A photodetector means according to claim 25, wherein the surrounding material comprises a continuously variable material composition or a combination of slabs and/or strips and/or laminae.

27. (Previously presented) A photodetector means according to claim 20, wherein the strip is inhomogeneous.

28. (Previously presented) A photodetector means according to claim 27, wherein the strip comprises layers of different metallic materials.

29. (Previously presented) A photodetector means according to claim 2, wherein the semiconductor material comprises a layer adjacent the ohmic contact having a higher doping level than portions further away, thereby providing relatively reduced resistance at the connection to the ohmic contact.

30. (Previously presented) A photodetector according to claim 1, wherein the semiconductor material has a thin layer adjacent said side of the strip that is doped to a higher level than portions further away from the strip, the thickness and doping level of the layer being preselected to provide a desired Schottky barrier height.